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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Paper No. 1003

Application Number: 09/446,390  
Filing Date: December 21, 1999  
Appellant(s): SCHULER ET AL.

Robert Bosch GmbH  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed July 02, 2003.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

The brief does not contain a statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief. Therefore, it is presumed that there are none. The Board, however, may exercise its discretion to require an explicit statement as to the existence of any related appeals and interferences.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct.

**(4) *Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

**(6) *Issues***

The appellant's statement of the issues in the brief is correct.

**(7) *Grouping of Claims***

Appellant's brief includes a statement that claims 6 and 10-24 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

**(8) *Claims Appealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) *Prior Art of Record***

2,555,997	PORTAIL	6-1951
3,841,906	GRUNEWALD ET AL.	10-1974
4,820,948	ROGELEIN	4-1989
5,909,077	BRUHN	6-1999

**(10) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 15, 20, 21 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Burr et al.

Regarding claim 15, Burr et al. show an electric machine equip with a collector (1), comprising:

- An end face with a plurality of channels (Figure 2); and
- A supply of lubricant (3) in an area of the end face allocated to the collector, wherein the brush has a plurality of grooves (2) along the collector-side end face and wherein the grooves are open at each end along the collector-side end face (Figure 2).

Regarding claim 20, Burr et al. show an electric machine comprising:

- A commutator (column 1, lines 1-5);

- At least one brush (1), wherein a collector-side end face of the at least one brush has a plurality of channels (Figure 2); and
- A supply of lubricant (3) for providing lubrication between the commutator and the at least one brush;
- Wherein the at least one brush contains the lubricant at a location which is least one of: (a) in or on a collector-side end face of the at least one brush, and (b) in or on a partial length of the at least one brush beginning at the collector-side end face of the at least one brush, wherein the brush has a plurality of grooves (2) along the collector-side end face and wherein the grooves are open at each end along the collector-side end face (Figure 2).

Regarding claims 21 and 24, it is noted that Burr et al. also show the collector having a plurality of grooves.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, 10, 11, 14, 16, 19, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burr et al. in view of Portail.

Regarding claim 6, Burr et al. show an electric machine comprising:

- A commutator (column 1, lines 1-5);
- At least one brush (1);

- A supply of soft lubricant (3) for providing lubrication between the commutator and the at least one brush;
- Wherein the at least one brush contains the lubricant at least one of:
  - (a) in or on a collector-side end face of the at least one brush, and (b) in or on a partial length of the at least one brush beginning at the collector-side end face of the at least one brush, wherein the brush has a plurality of grooves (2) along the collector-side end face and wherein the grooves are open at each end along the collector-side end face (Figure 2).

Burr et al. do not use the oil lubricant.

Portail shows the lubricant being oil (11) for the purpose of reducing friction.

Since Burr et al. and Portail are all from the same field of endeavor, the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use oil lubricant instead of soft lubricant as taught by Portail for the purpose discussed above.

Regarding claim 10, Burr et al. shows a brush (1) for an electric machine equipped with a collector (1) comprising:

- An end surface (top of Figure 2); and
- A supply of soft lubricant (3) in an area of the end face allocated to the collector, wherein the brush has a plurality of grooves (2) along the

collector-side end face and wherein the grooves are open at each end along the collector-side end face (Figure 2).

Burr et al. do not use oil lubricant.

Portail uses oil lubricant (11) for the purpose of reducing friction.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use oil lubricant instead of soft lubricant as taught by Portail for the purpose discussed above.

Regarding claims 11 and 16, it is noted that Portail also shows the collector/commutator having recesses (4, 10) which function as storage reservoirs for the oil lubricant (Figure 4).

Regarding claims 14 and 19, it is noted that Burr et al. also show the collector-side end face having a plurality of channels (Figure 2).

Regarding claims 22 and 23, it is noted that Burr et al. also show the collector having a plurality of grooves.

Claims 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burr et al. in view of Portail as respectively applied to claims 10 and 6 above, and further in view of Grunewald et al.

Regarding claims 12 and 17, the machine of Burr et al. modified by Portail shows all of the limitations of the claimed invention except for the brush being made from carbon, pressed metal powder or alloys thereof.

Grunewald et al. show the brush (11) being made from carbon, pressed metal powder or alloys thereof for the purpose of increasing brush life hours.

Since Burr et al., Portail and Grunewald et al. are all from the same field of endeavor, the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to make the brush from carbon, pressed metal powder or alloys thereof as taught by Grunewald et al. for the purpose discussed above.

Claims 13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burr et al. in view of Portail as respectively applied to claims 10 and 6 above, and further in view of Rogelein.

Regarding claims 13 and 18, the machine of Burr et al. modified by Portail shows all of the limitations of the claimed invention except for the brush being protected by a dust guard.

Rogelein shows the brush being protected by a dust guard (29) for the purpose of preventing contamination.

Since Burr et al., Portail and Rogelein are all from the same field of endeavor, the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to protect the brush by a dust guard as taught by Rogelein for the purpose discussed above.

Claims 6, 10, 11, 14-16 and 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruhn in view of Portail.



Regarding claim 6, Bruhn shows an electric machine comprising:

- A commutator (4);
- At least one brush (1);
- Wherein the brush has a plurality of grooves (11, 12) along the collector-side end face and wherein the grooves are open at each end along the collector-side end face (Figure 2).

Bruhn does not a supply of oil lubricant for providing lubrication between the commutator and the at least one brush; wherein the at least one brush contains the lubricant at least one of: (a) in or on a collector-side end face of the at least one brush, and (b) in or on a partial length of the at least one brush beginning at the collector-side end face of the at least one brush.

Portail shows the supply of oil lubricant (3) for providing lubrication between the commutator and the at least one brush; wherein the at least one brush contains the lubricant at least one of: (a) in or on a collector-side end face of the at least one brush, and (b) in or on a partial length of the at least one brush beginning at the collector-side end face of the at least one brush (Figures 1-4) for the purpose of reducing friction.

Since Bruhn and Portail are all from the same field of endeavor, the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide a supply of oil lubricant for lubrication between the commutator and the at least one brush; wherein the at least one brush contains the lubricant at least one of: (a) in or on a collector-side end face of the at least one brush,

and (b) in or on a partial length of the at least one brush beginning at the collector-side end face of the at least one brush as taught by Portail for the purpose discussed above.

Regarding claim 10, Bruhn shows a brush (1) for an electric machine equipped with a collector (4) comprising:

- An end surface (3, Figure 2); and
- Wherein the brush has a plurality of grooves (11, 12) along the collector-side end face and wherein the grooves are open at each end along the collector-side end face (Figure 2).

Bruhn does not show a supply of oil lubricant in an area of the end face allocated to the collector.

Portail shows the supply of oil lubricant (8) in an area of the end face (11) allocated to the collector (1) for the purpose of reducing friction.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide a supply of oil lubricant in an area of the end face allocated to the collector as taught by Portail for the purpose discussed above.

Regarding claim 15, Bruhn shows a brush (1) for an electric machine equip with a collector (4), comprising:

- An end face (3) of the brush (Figure 2) with the plurality of channels (11, 12); and
- Wherein the brush has a plurality of channels (11, 12) along the collector-side end face and wherein the grooves are open at each end along the collector-side end face (Figure 2).

Bruhn does not show the supply of lubricant in an area of the end face allocated to the collector.

Portail shows the supply of lubricant (3) in an area (11) of the end face allocated to the collector for the purpose of reducing friction.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the supply of lubricant in an area of the end face allocated to the collector as taught by Portail for the purpose discussed above.

Regarding claim 20, Bruhn shows an electric machine comprising:

- A commutator (4);
- At least one brush (1), wherein a collector-side end face of the at least one brush has a plurality of channels (11, 12, Figure 2); and
- Wherein the channels are open at each end along the collector-side end face (Figure 2).

Bruhn does not show a supply of lubricant for providing lubrication between the commutator and the at least one brush; wherein the at least one brush contains the lubricant at a location which is least one of: (a) in or on a collector-side end face of the at least one brush, and (b) in or on a partial length of the at least one brush beginning at the collector-side end face of the at least one brush.

Portail shows a supply of lubricant (Figures 1-4) for providing lubrication between the commutator and the at least one brush; wherein the at least one brush contains the lubricant at a location which is least one of: (a) in or on a collector-side end face of the

at least one brush, and (b) in or on a partial length of the at least one brush beginning at the collector-side end face of the at least one brush for the purpose of reducing friction.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide a supply of lubricant for lubrication between the commutator and the at least one brush; wherein the at least one brush contains the lubricant at a location which is least one of: (a) in or on a collector-side end face of the at least one brush, and (b) in or on a partial length of the at least one brush beginning at the collector-side end face of the at least one brush taught by Portail for the purpose discussed above.

Regarding claims 11 and 16, it is noted that Portail also shows the collector/commutator having recesses (4, 10) which function as storage reservoirs for the oil lubricant (Figure 4).

Regarding claims 14 and 19, it is noted that Bruhn also shows the collector-side end face having a plurality of channels (Figure 2).

Regarding claims 21-24, it is noted that Bruhn also shows the collector having a plurality of grooves (11, 12).

Claims 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruhn in view of Portail as respectively applied to claims 10 and 6 above, and further in view of Grunewald et al.

Regarding claims 12 and 17, the machine of Bruhn modified by Portail shows all of the limitations of the claimed invention except for the brush being made from carbon, pressed metal powder or alloys thereof.

Grunewald et al. show the brush (11) being made from carbon, pressed metal powder or alloys thereof for the purpose of increasing brush life hours.

Since Bruhn, Portail and Grunewald et al. are all from the same field of endeavor, the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to make the brush from carbon, pressed metal powder or alloys thereof as taught by Grunewald et al. for the purpose discussed above.

Claims 13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruhn in view of Portail as respectively applied to claims 10 and 6 above, and further in view of Rogelein.

Regarding claims 13 and 18, the machine of Bruhn modified by Portail shows all of the limitations of the claimed invention except for the brush being protected by a dust guard.

Rogelein shows the brush being protected by a dust guard (29) for the purpose of preventing contamination.

Since Bruhn, Portail and Rogelein are all from the same field of endeavor, the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to protect the brush by a dust guard as taught by Rogelein for the purpose discussed above.

**(11) Response to Argument**

Regarding the applicants' argument in section A of the Appeal Brief, the examiner believes that Burr et al. anticipate the subject matter of claims 15 and 20 for the following reasons.

The channels (2) of Burr et al. are filled with filler (3), which is softer than the body of the brush and is quite porous (page 2, column 2, lines 29-35). Burr et al. also insist that the filler is very soft to obtain the best results (page 3, column 1, lines 9-20). During the life of the brush (1), the channels (2) can also be open for a certain amount of time because of the porous filler (3). The term "open" also means "being porous and friable" (The Merriam Webster's Collegiate Dictionary, Tenth Edition).

The examiner agrees that the channels in the present application are open before being filled up with oil and after the oil is used up. However, claims 15, 20, 21, and 24 are open-ended claims and do not particularly point out and distinctly claim the subject matter. They do not definitely reciting the lubricant being in liquid form. They neither specify that the channels being open the entire life of the brush after being filled with the lubricant. In other words, the claims do not clearly state when the channels are open.

Regarding the applicants' argument in sections B, C, and D of the Appeal Brief, the examiner would like to point that there is motivation to replace the relatively soft lubricating material of Burr et al. with the very soft lubricating material of Portail, which is liquid. Burr et al. state that the insert material is very soft to obtain the best results. The liquid used by Portail is very soft. Both references are directed to brushes and

commutators and classified in the same class and subclass. The brushes are made for the same purpose of reducing wear and providing smooth operation.

Regarding the Grunewald et al. reference, although Grunewald et al. do not show the channels, Grunewald et al. teach to make the brushes from carbon and pressed metal powder or alloys. The Grunewald et al. reference is also classified in the same class and subclass.

Regarding the Rogelein reference, although Rogelein does not show the brushes having channels, Rogelein teaches to include a dust guard (29) in the motor. The Rogelein reference is also classified in the same class.

In addition, references may be combined although none of them explicitly suggests combining one with the other. In re Nilssen, 7 USPQ2d 1500 (Fed. Cir. 1989).


Therefore, it would have been obvious to one having ordinary skill in the art to fill the channels either with liquid or relatively soft lubricating material, to make the brushes with carbon and metal powder or alloys, and to add a dust guard to protect the brushes.

Regarding the applicants' argument in section E of the Appeal Brief, it is noted that Portail adds the oil for the purpose of reducing wear and smooth operation while Bruhn provides the grooves in order to reduce noise. They are both classified in the same class and directed to the brushes. In fact, one having ordinary skill in the art would find that providing grooves on the contact surface of the brushes (2) of Portail would reduce noise. On the other hand, adding the oil to the brushes or the commutators of Bruhn will reduce wear as taught by Portail.

The applicants' argument in sections F and G of the Appeal Brief is the same as in sections C and D. Therefore, the examiner's response is not repeated herein.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,




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